

REMARKS

Claims 1-20 are pending in this application. By this Amendment, claims 1 and 5 have been amended. The amendment to claim 5 changes the dependency of claim 5 from claim 2 to claim 1. No new matter has been added.

Applicants appreciate the indication of allowability of claims 2-7, 12-14, and 17-20 on page 5 of the Office Action. However, for the reasons discussed below, all of claims 1-20 are allowable.

On page 2 of the Office Action, claim 1 was rejected under 35 U.S.C. §103(a) over Matsuda, U.S. Patent No. 4,633,724, in view of Hirata et al. (Hirata), U.S. Patent No. 6,129,559. The rejection is respectfully traversed.

Applicants' invention of claim 1 calls for an inkjet head system having an inkjet head and a printed board connected to the inkjet head, wherein the inkjet head comprises a cavity plate formed with a plurality of ink pressure chambers arranged adjacent to each other; a piezoelectric actuator placed on the cavity plate; and a plurality of driving electrodes formed on the piezoelectric actuator at positions corresponding to respective ones of the plurality of ink pressure chambers, and the printed board comprises a plurality of electrode lands connected with respective ones of the plurality of driving electrodes to supply driving signals thereto, the electrode lands and corresponding ones of the plurality of driving electrodes being attracted with each other with magnetic force acting therebetween.

The alleged combination of Matsuda and Hirata fails to disclose or suggest these features.

As admitted by the Examiner on page 3 of the Office Action, "Matsuda fails to disclose the electrode lands being connected with the respective plurality of driving elements by means of magnetic force." However, contrary to the Office Action assertion, Hirata fails to overcome the deficiencies of Matsuda because Hirata fails to disclose or suggest that the printed board includes a plurality of electrode lands connected with respective ones of the plurality of driving

electrodes to supply driving signals thereto, the electrode lands and corresponding ones of the plurality of driving electrodes being attracted with each other with magnetic force acting therebetween, as recited in claim 1.

In Hirata, the magnet layers 20, 28 are in physical contact with each other but are isolated from the electrodes 16, 24 (Figs. 2(a)-2(d)). A spacer 27 is disposed between the magnet layer 28 and the electrodes 24 of the metal connector 23 (Fig. 2(d)). Similarly, a spacer 19 is disposed between the magnet layer 20 and the electrodes 16 of the female connector 15 (Fig. 2(c)). Accordingly, the magnet layer is physically and electrically separated from the electrodes. As Hirata clearly describes, "the male and female connector electrodes 24 and 16 are aligned with each other by matching magnetic layers 28 and 20 provided on the male and female connectors 23 and 15 respectively with each other" (col. 10, lines 1-4). "The magnet layers 28 and 20 attract each other, thereby connecting the male and female electrodes 24 and 16 with each other" (col. 10, lines 4-6). The magnetic layers 20, 28 are only used to facilitate the connection of the male and female connectors 15, 23. Thus, the electrodes 16, 24 are not magnetically attracted to each other. Accordingly, Hirata lacks the required suggestion under 35 U.S.C. §103 to modify the inkjet head to achieve the desired features as recited in claim 1.

Applicants' ink head system, on the other hand, is configured such that a plurality of driving electrodes of the inkjet head and a plurality of electrode lands of the printed board include electrically conductive magnetic material, and thereby, the plurality of driving electrodes and corresponding ones of the plurality of electrode lands are physically and electrically connected with each other with magnetic force acting between them (Fig. 3). The alleged combination of Matsuda and Hirata fails to disclose or suggest this feature.

As MPEP §2141 states, "When applying 35 U.S.C. §103, the following tenants of patent law must be adhered to: (A) The claimed invention must be considered as a whole; (B) The references must be considered as a whole and must suggest the desirability and thus the

obviousness of making the combination; (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and (D) Reasonable expectation of success is a standard with which obviousness is determined." (Emphasis added). The only way one skilled in the art would achieve the desired features as recited in claim 1 is to use the Applicants' specification as a blueprint. However, this is at best, impermissible hindsight vision because nowhere does the combination of Matsuda and Hirata disclose or suggest that the plurality of driving electrodes of the inkjet head and the plurality of electrode lands of the printed board include electrically conductive magnetic material, and that the driving electrodes and electrode lands are physically and electrically connected with each other by the magnetic force acting between them.

Thus, the combination of Matsuda and Hirata does not suggest each and every feature of Applicants' claimed invention as recited in claim 1 and the rejection under 35 U.S.C. §103(a) is inappropriate.

On page 3 of the Office Action, claims 8-11 were rejected under 35 U.S.C. §103(a) over Matsuda in view of Belongia et al. (Belongia), U.S. Patent Application Publication No. US2004/0077187 A1. The rejection is respectfully traversed.

As admitted by the Examiner on page 3 of the Office Action, "Matsuda fails to disclose the terminal being provided with magnetic material, allowing the terminal to be detachably connected with the external power line by means of magnetic force." Also as admitted by the Examiner, "Matsuda fails to disclose the magnetic material is permanently magnetized, the magnetic material is ferromagnetic material that is not magnetized, and the magnetic material is iron." The Office Action alleges that Belongia makes up for the deficiencies of Matsuda. However, Belongia is not prior art to the claimed invention. Applicants claim priority from JP 2002-277331, filed September 24, 2002. Belongia was filed in the U.S. on April 16, 2003. Belongia's earliest possible effective U.S. filing date is the April 16, 2002, filing date of the

provisional application. However, to use that date, there must be a showing the provisional application disclosed the feature relied upon. One cannot assume the provisional application number 60/376,349, filed on April 29, 2002, fully supports the later filed non-provisional application. As MPEP §706.02(f)(1) states, "the subject matter used in the rejection must be disclosed earlier-filed application in compliance with 35 U.S.C. §112, first paragraph, in order for that subject matter to be entitled to the earlier filing date under 35 U.S.C. §102(e)." The subject matter identified in the Office Action is not found in the provisional application number 60/376,349, filed on April 29, 2002. Thus, the earliest effective filing date for Belongia is April 16, 2003. Accordingly, Belongia is not prior art. As Belongia is not prior art, it is respectfully requested that the rejection be withdrawn. Further, neither the provisional or non-provisional versions of Belongia disclose "a terminal being provided with magnetic material."

On page 4 of the Office Action, claims 15 and 16 were rejected under 35 U.S.C. §103(a) over Scheffelin et al. (Scheffelin), U.S. Patent No. 6,523,940, in view of Hirata. The rejection is respectfully traversed.

As admitted by the Examiner, "Scheffelin fails to disclose terminals that include magnetic material in order to establish a connection using magnetic force where the flexible printed board contains magnetic material that is permanently magnetized." Contrary to the Office Action assertion, Hirata fails to overcome deficiencies of Scheffelin as applied to claim 15.

Hirata does not disclose or suggest a conductive layer formed on the electrode land, the conductive layer including magnetic material, the conductive layer and the terminal of the inkjet head attract and establish connection with each other due to a magnetic force acting therebetween, as recited in claim 15. As discussed above, the magnetic layers used by Hirata are for adjusting the positional relationships of the electrodes and are provided separately from the electrodes. As shown in Figs. 38-39 of Hirata, the male and female connectors are aligned

with each other by the magnets 224, 234. The male connector includes a guide 225 which is inserted between the guide 235 of the female connector (col. 23, lines 35-38). As shown in Figs. 38 and 39, it is the annular shape of the terminal assembly that allows the magnets 224, 234 to be positioned in the center of the male and female connectors. Nowhere does Hirata disclose or suggest that the magnets 224, 234 are included as part of the conductive layer formed on the electrode land. Accordingly, Hirata lacks the required suggestion under 35 U.S.C. §103 to modify the conductive layer to achieve the desired features as recited in claim 15.

Thus, the combination of Scheffelin and Hirata does not suggest each and every feature of Applicants' claimed invention as recited in claim 15 and the rejection under 35 U.S.C. §103 is inappropriate.

Because neither Scheffelin, Hirata, nor the combination thereof, disclose or suggest all of the features recited in claim 15, the combination cannot suggest claim 16 for that reason and for the additional features recited therein. It is respectfully requested that the rejection be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-20 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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